REMARKS/ARGUMENTS

Claims 1-20 are pending in the application, and stand rejected. Claims 21-27 have been withdrawn, independent claim 1 has been amended, and no new claims have been added. No new matter has been added. Reexamination and reconsideration of the claims as requested is respectfully requested.

In paragraph 3 on page 2 of the Office Action, claims 1-4 are rejected under 35 U.S.C. §102 (b) as being anticipated by *Blechner et al.* (US Patent No. 4580617). The Applicant respectfully traverses this rejection, and request re-consideration and withdrawal of the rejections.

In paragraph 5 on page 3 of the Office Action, claims 5-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Blechner et al* (US Patent No. 4580617). The Applicant respectfully traverses this rejection, and request re-consideration and withdrawal of the rejections.

The Office Action does not appreciate the scope and purpose of the Applicant's invention. Moreover, independent claim 1, as currently amended, further clarifies and distinguishes the claimed invention. Therefore, before addressing the 35 U.S.C. § 102 and 35 U.S.C. § 103(a) rejections based on *Blechner et al*, the Applicant would like to focus attention on the invention described and currently claimed in the application. This refocusing should help to understand why rejections based on *Blechner et al* are not appropriate, do not disclose the invention, and should be withdrawn. The inapplicability of *Blechner et al* is discussed generally in the following section.

Claimed Invention Solves Problem of Controlling the Melting & Casting Operation Based on Variable Irradiation Properties of Different Melting Materials

Invention Solves Problem

An object of the invention is to provide a melting and casting apparatus that precisely controls the melting and casting operation in dependence on an ascertained

melting charge temperature. A problem with melting and casting operations is that different melting materials show different irradiation properties. Therefore, the irradiation data acquired with a pyrometer are imprecise, and the temperature cannot be determined exactly. An example of an influencing factor affecting such impreciseness is the occurrence of an oxide layer that is present in certain melting materials, and whereas other melting materials do not present such an oxide layer.

The invention solves this problem by providing a data base with a plurality of material-specific parameter sets and a configurable pyrometer. The pyrometer is configured with one or more parameters depending on the material to be melted and cast. By this, the melting and casting apparatus of the invention determines a precise temperature of the melting charge by configuring the pyrometer individually for each material that is melted. The invention has a sophisticated error compensation based on a scientific data base describing the irradiation properties of a material depending on its temperature.

Blechner et al **Solves Completely Different Problems**

Blechner et al completely fails to identify or solve the above problem underlying the claimed invention. The problems that *Blechner et al* addresses are: "[1] during the heating of the metal ingot, impurities from the atmosphere and from the heating flame are absorbed into the molten metal and carbon from the heating flame further contaminates the resulting casting. A further problem [involves low density metals with reduced forces of centrifuge]." Col. 1, lines 50-58.

In *Blechner et al* the signal of the temperature sensor (118) is used in a very simplified manner to create a binary output signal (using the flip-flop-component (154)) to activate a slow-feed action or a fast-feed action. There is no correction of the temperature signal at all! Moreover, there is no material-specific configuration of the temperature sensor, and consequently there is no need to provide any data base comprising parameter sets for such configuration.

The induction casting machine of *Blechner et al* has a melting crucible, a heating device, and a temperature sensor. The signal of the temperature sensor is fed into a

controller as can be best seen from Fig. 3. Within the controller the temperature signal is processed using a flip-flop-component (154) activating a relay (104). The relay (104) is used to initiate either a fast-feed action or a slow-feed action of an inert gas flow depending on the binary signal of the flip-flop (154). This is not a solution to the problem solved by the claimed invention.

Blechner et al Does Not Anticipate the Claimed Invention

Blechner et al does not anticipate claims 1-4, and the Applicant has further clarified the claimed invention to emphasize a difference. This clarification should not be considered acquiescence to the rejection as several elements are lacking from the reference to be considered a proper 35 U.S.C. §102 rejection.

Independent claim 1, as currently amended, reads:

1. Apparatus for carrying out a melting and casting operation in the fine casting art, in particular the dental art, comprising

a melting crucible for receiving melting charge,

a heating device for heating the melting charge in the melting crucible,

a pyrometer for ascertaining the temperature of the melting charge, the pyrometer adapted for use with different melting and casting materials, and

a control device for controlling the melting and casting operation in dependence on the ascertained melting charge temperature, wherein the control device has a database with a plurality of selectable, respectively melting charge material-specific parameter sets each with one or more parameters for configuring the pyrometer.

With respect to failing to make a *prima facie* case for a 35 U.S.C. §102 rejection, we note that *Blechner et al* has several failings. *Blechner et al* do not disclose any data base or any other device for storing a plurality of material specific parameter sets. *Blechner et al* also do not disclose any parameter to configure the temperature sensor (or pyrometer). *Blechner et al* also do not disclose a control device for controlling the melting and casting operation in dependence on the ascertained melting charge temperature. Hence, *Blechner et al* for any and all of the above reasons cannot and do not anticipate currently amended claim 1, and remaining dependent claims 2-20.

The recent Office Action stated that *Blechner et al* would disclose a "control device **capable of** having a data base with parameter sets [emphasis added]." Whether a device is "capable of" having an element is an improper 35 U.S.C. §102 rejection without the Examiner meeting the burden of proof. MPEP Section 2112 states in pertinent part that:

> "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted) (The claims were drawn to a disposable diaper having three fastening elements. The reference disclosed two fastening elements that could perform the same function as the three fastening elements in the claims. The court construed the claims to require three separate elements and held that the reference did not disclose a separate third fastening element, either expressly or inherently.)."

Without this proof, the proper inquiry is whether the reference discloses or does not disclose the claimed element. *Blechner et al* do not the missing elements and is lacking in such disclosure. After intense scrutiny of the *Blechner et al* disclosure, in particular those parts directed to the controller (78) such as Fig. 3, column 6, lines 1-5 and line 56 - column 7, line 5, we cannot identify any disclosure of a data base within the controller (78). The controller (78) of *Blechner et al* is a simple controlling unit with a small number of components connected to each other. There is no identified component for storing of any data within the controller. More specifically, there is no identified

component for storing a data base comprising a plurality of parameter sets. In addition, *Blechner et al* do not disclose any details describing what sort of parameter should be comprised in a data base. In particular, *Blechner et al* do not disclose a data base having melting charge material-specific parameter sets. Thus, the controller (78) of the casting machine in *Blechner et al* does not disclose a data base with parameter sets as in the claimed invention.

Once again, the above discussion shows that *Blechner et al* do not address the problem solved by the invention, and *Blechner et al* fails to anticipate the claimed invention.

Blechner et al Does Not Render the Claimed Invention Obvious

To establish *prima facie* obviousness of a claimed invention under 35 U.S.C. §103, the Examiner has the burden of proving that three basic criteria are met. First, there must be some suggestion or motivation to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure. All three of these criteria must be met in order to support a finding of *prima facie* obviousness of a claimed invention (*see, e.g.,* MPEP § 2142).

The Examiner has not shown 1) a teaching or suggestion or motivation to make the claimed invention with 2) the reasonable expectation of success being found in the prior art, and 3) not based on Applicant's disclosure. Because the Office Action does not meet its burden, the rejection must be withdrawn. The following discussion supplements and clarifies why the combined references do not present a *prima facie* case of obviousness.

The Applicant incorporates by reference hereto, the argument and evidence provided in the preceding paragraphs concerning *Blechner et al.* It should be noted that the Office Action relies on *Blechner et al* as the **only** reference of record for the obviousness rejection. It is important to note that a person of skill in the art would not,

after reading *Blechner et al,* come up with the claimed invention for several reasons. There is no suggestion, teaching, or motivation to supply the specific details of the missing elements, the missing elements have been identified in the section traversing the 35 U.S.C. §102 rejection. Indeed, the only suggestion or instructions to come up with the claimed invention is by improperly relying on the Applicant's disclosure to arrive at the invention. The Office Action offers no evidence that a person of skill in the art would come up with the Applicant's invention through reliance solely on the content of *Blechner et al.* Hence, a *prima facie* case has not been shown, and the rejections should be withdrawn.

In view of the amendments and reasons provided above, it is believed that all pending claims are in condition for allowance. Applicant respectfully requests favorable reconsideration and early allowance of all pending claims.

If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicant's attorney of record, Michael B. Lasky at (952) 253-4106.

Respectfully submitted,

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